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RCA-03/0010/69

Basic Imagery Interpretation Report



**NATIONAL
PHOTOGRAPHIC
INTERPRETATION
CENTER**

25X1

GALENKI ESV TRACKING FACILITY

25X1

**DEPLOYED COMM/ELEC/RADAR FACILITIES
USSR
JANUARY 1969**

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INSTALLATION OR ACTIVITY NAME

Galenki ESV Tracking Facility

COUNTRY

UR

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UTM COORDINATES

NA

GEOGRAPHIC COORDINATES

44-01-20N 131-45-40E

MAP REFERENCE

ACIC. US Air Target Chart 200, Sheet M0282-21HL, 4th ed. Dec 65, Scale 1:200,000 (SECRET/

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LOCATION INFORMATION

NEGATION DATE (If Applicable)

NA

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ABSTRACT

The Galenki Earth Satellite Vehicle (ESV) Tracking Facility is one of a network of ten facilities that provide command/control of Soviet near-space events and one of five facilities that is equipped to provide command/control for the Molniya communications satellite. In addition to the equipment associated with the above functions, the facility contains a [redacted] dish antenna, which is the only one of its size known to exist in the Soviet Far East.

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Two HF communications areas are associated with the ESV tracking facility. One is an HF receiving component located west of and adjacent to the ESV facility, and the other is an HF transmitting component located 5 nm SW.

The secured main operations area occupies approximately 90 acres, and the separately secured support area occupies 100 acres.

INTRODUCTION

The Galenki ESV Tracking Facility is located at 44-01-20N 131-45-40E at an elevation of 400 feet, approximately 0.5 nm south of Galenki (Figure 1). The surrounding terrain is relatively level and supports no vegetation that would obstruct the radar line of sight.

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FIGURE 1. LOCATION MAP.

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When the facility was first observed in [] the limited interpretability of the photography allowed only the identification of construction activity at what was later identified as the ESV tracking facility. 25X1

In addition to the ESV operations area, two companion HF communications components are discussed in this report. Although the transmitting component is physically located 5 nm from the ESV operations area, it is considered an integral part of the total facility.

BASIC DESCRIPTION

ESV Operations Area

With the exception of the [] dish antenna at this facility, all of the equipment contained in the ESV operations area is typical of that observed at other ESV tracking facilities that have Molniya equipment. This equipment includes the Molniya COMSAT component, the ESV component, and various other tracking/telemetry antennas (Figure 2).

The Molniya component consists of two Molniya control buildings each measuring 100 by 100 feet by 25 feet high. A 50-foot dish antenna is mounted on the center of each building. 1/ A probable Molniya calibration tower is located approximately 2 nm west of the facility.

The ESV component consists of two [] radomes, each mounted on a 25X1 control building that is []

The other antennas in the ESV operations area include two types of five-element helix arrays, two building-mounted SHIP WHEEL radars, one building-mounted four-element helix array, two van-mounted SHIP WHEEL radars, two van-mounted probable telemetry arrays, two pedestal-mounted probable telemetry arrays, and the previously mentioned []

The [] dish antenna is located just south of the old security fence (Figure 2). The antenna and the pedestal on which it is mounted have a total height of approximately 100 feet. A more detailed interpretation cannot be made of this antenna or of the two probable telemetry arrays due to the limited interpretability of photography accomplished since their construction.

Both HF communications components contain long-range high-frequency antennas (fishbones in one and rhombics in the other) that are oriented along the same azimuth.

The HF receiving component (Figure 3) contains ten fishbone antennas all of which are [] wide and vary in length from [] Other items in the receiving component include three tower-mounted VHF antennas, five HF horizontal dipole antennas, one microwave tower, one 16-element helix array (discussed below), and one calibration tower which is cable-connected to a building midway between the ESV buildings.

The HF transmitting component (Figure 4) contains 13 double rhombic antennas all but one of which are arranged in day/night pairs. Other items include 14 horizontal dipole antennas, two omnidirectional quadrant antennas, two VHF antennas mounted on towers, and one 16-element helix array (discussed below).

These companion components most likely provide HF communications links to Moscow, Khutor ESV Tracking Facility, Ulan-Ude ESV Tracking Facility, and three unidentified areas (Figures 3 & 4). Both components contain tower-mounted VHF antennas which probably link the two together.

As mentioned above, both HF components contain a 16-element helix array. Separating the two arrays and collocating them with HF communications has been noted at other ESV tracking facilities. The array itself has its 16 elements mounted in a 4 by 4 configuration on a rectangular plane which is [] The estimated frequency for these arrays is 108 - 136 MHz and can probably be expanded to 90 - 150 MHz. 2/ 25X1

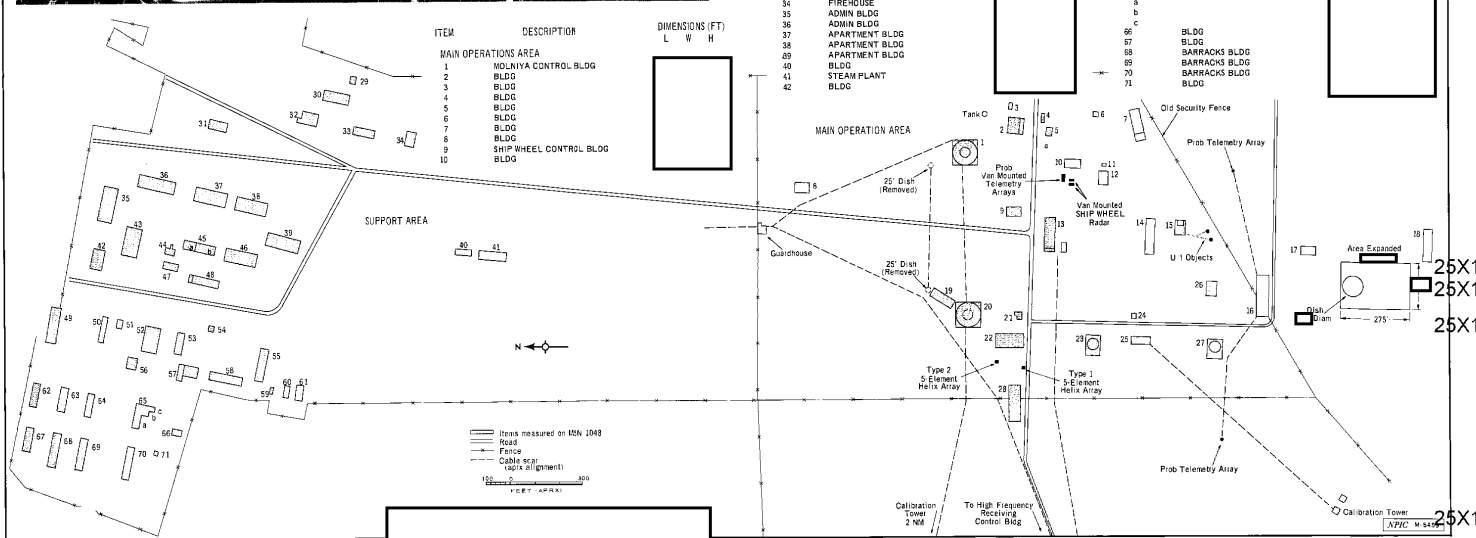
The limited interpretability of the initial coverage of the facility on [] allowed only the identification of construction activity throughout the area. 25X1

By [] photography revealed that both ESV buildings appeared externally complete, but neither had its dome in place. The Molniya buildings appeared to be under construction as did eight other buildings in the operations area.

Photography of [] revealed that the dome had been positioned on the northernmost ESV building and antennas were possibly present on both Molniya buildings. Eight additional buildings appeared complete at this time. 25X1

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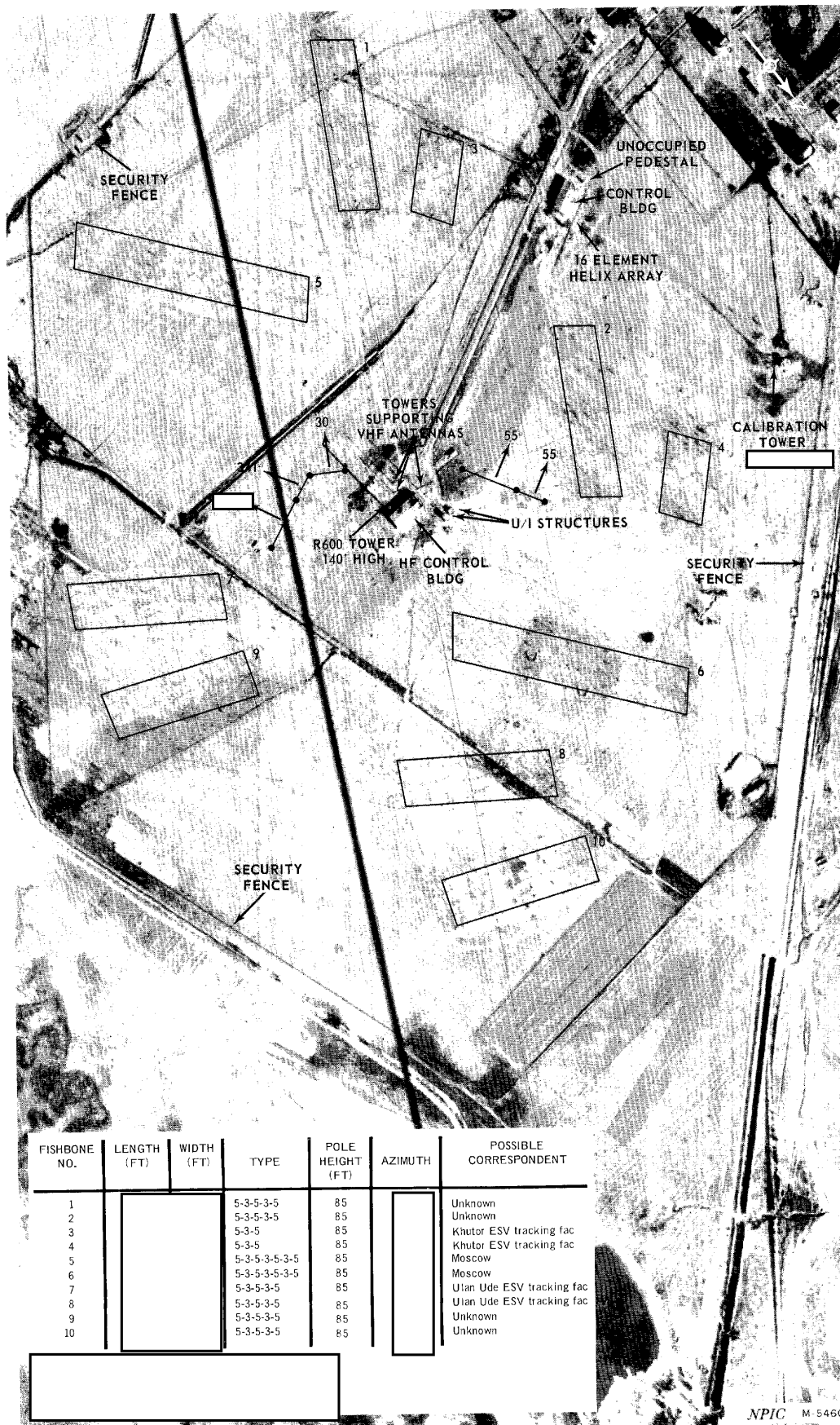


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FIGURE 3. HF COMMUNICATIONS RECEIVING COMPONENT.

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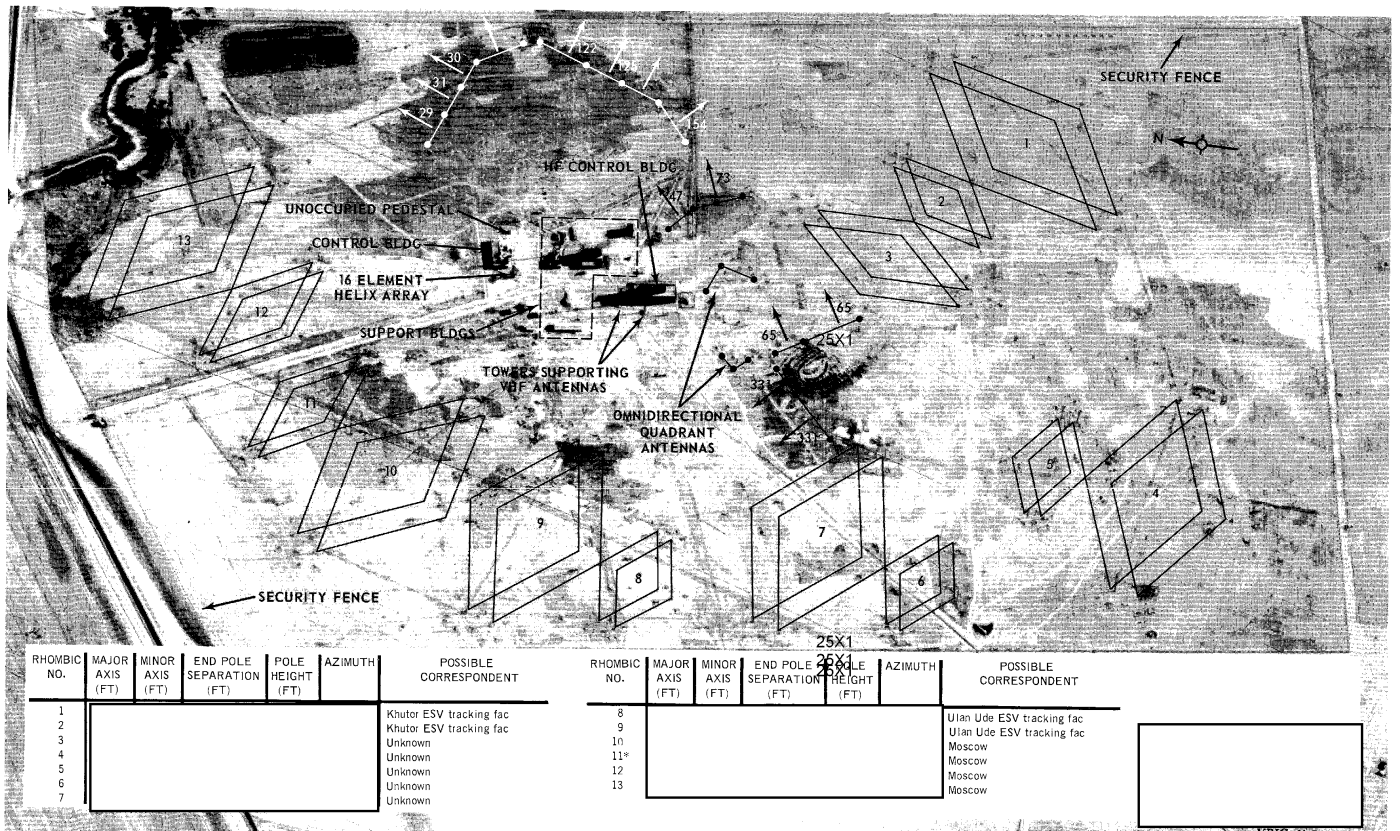


FIGURE 4. HF COMMUNICATIONS TRANSMITTING COMPONENT.

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Two large-scale missions in [] made possible the identification of the smaller components in the operations area that had been present before but not specifically identifiable. All components appeared operational at that time. Two 25-foot-diameter antennas were located adjacent to the Molniya buildings, but by [] had been removed. 25X1

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The expansion began in [] with the addition of a [] dish antenna and two associated buildings. In [] an additional control-type building and two pedestal-mounted probable telemetry arrays were added. Unidentified construction activity was observed on the latest coverage immediately west of the dish antenna. At this time the purpose of this activity cannot be determined. 25X1

This facility accomplishes at least two missions. It supports a variety of Soviet near-space events, and it provides command/control and serves as a ground terminal/relay for the Molniya COMSAT system.

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In [] the capability of the facility was significantly increased with the addition of the [] diameter dish antenna. It is not possible to determine the precise function of the antenna at this time. However, it will increase the ranges at which the facility can operate and probably will extend them as far as lunar distances. The antennas' significance is emphasized even more by the fact that it is the only dish of this size known to exist in the Soviet Far East.

Support Area

The separately secured support area (Figure 2) contains 43 buildings with a total of approximately 217,000 square feet of floorspace. The four largest buildings within the area are four two-story apartment buildings measuring [] 25X1

Heat is furnished to the entire facility by a steam plant located between the operations area and the support area. Power and water for the facility appear to be furnished by external sources and probably enter the facility by underground lines.

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In [] twenty-three buildings made up the support area. By [] thirty-one buildings were present and additional buildings were under construction. 25X1

At present 43 buildings are located in the support area.

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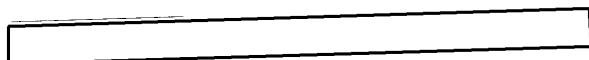
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REFERENCES

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DOCUMENTS

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1. NPIC. [redacted] Sary Shagan ESV Tracking Facility, USSR, Nov 68 (TOP SECRET [redacted])
2. NPIC. [redacted] Probable Satellite Telemetry Collection Antenna, Simferopol, USSR, May 66
(TOP SECRET [redacted])

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MAPS AND CHARTS

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ACIC. US Air Target Chart, Series 200, Sheet M0282-21HL, 4th ed, Dec 65 (SECRET [redacted])

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REQUIREMENT

COMIREX BR-C/002-69

NPIC Project 210180

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